

What is claimed is:

1. An alignment laser projection system comprising:

a housing wherein both sides of the housing are open and a permeation window is formed in the length direction at the bottom of the housing;

5 a first side surface holding plate wherein an upper hole and a center hole are formed such that the central axis of each hole is the same as the central axis line in the length direction of the permeation window, and a pair of bottom holes are formed such that the central axis of each hole is in parallel with and level with the axis line in the length direction of the permeation window, and the two axes of the holes are symmetrical about the axis line of the permeation window, and the first side surface holding plate is coupled to one side surface of the housing;

10 a second side surface holding plate where holes corresponding the upper hole and bottom holes of the first side surface holding plates are formed respectively and the second side surface holding plate is coupled to the other side of the housing;

a center holding plate wherein holes corresponding to each of bottom holes of the first and second side surface holding plates are formed and the center holding plate is coupled to the inner center of the housing;

20 a reflection unit which penetrates into and is coupled to each upper hole of the first and second side surface holding plates;

a guide unit formed with a ball screw and a guide rod wherein both ends of each of the ball screw and the guide rod penetrate into and are coupled to respectively bottom holes of the first and second side surface holding plates;

25 a pair or more of guide blocks which are disposed on locations symmetrical about the center holding plate, wherein the guide unit penetrates into and is coupled to a pair or more of the guide blocks;

a driving unit which is coupled to one end of the ball screw and drives the ball screw;

30 an encoder which is coupled to the other end of the ball screw and detects information on the movement of the ball screw;

a first irradiation unit which is inserted into a central hole of the first side surface holding plate and irradiates light;

5 a moving reflection unit which is coupled to a coupling member on the top of each guide block and protrudes above the central axis line of the permeation window in the length direction;

a second irradiation unit which is coupled to the center holding plate by a coupling member and protrudes above the central axis line of the permeation window in the length direction; and

10 a control unit which is connected to the driving unit, the encoder, and the first and second irradiation units and controls the same.

2. An alignment laser projection system comprising:

a housing wherein both sides of the housing are open and a permeation window is formed in the length direction at the bottom of the housing;

15 a first side surface holding plate wherein an upper hole is formed such that the central axis of the hole is the same as the central axis line in the length direction of the permeation window, and a pair of bottom holes are formed in the vertical direction on one location selected between two locations where the central axis of a lower bottom hole of the pair is in parallel with and level with the center of the axis line in the length direction of the permeation window and the first side surface holding plate is coupled to one side surface of the housing;

20 a second side surface holding plate where holes corresponding the upper hole and bottom holes of the first side surface holding plates are formed respectively and the second side surface holding plate is coupled to the other side of the housing;

25 a center holding plate wherein holes corresponding to each of bottom holes of the first and second side surface holding plates are formed and the center holding plate protrudes to the center from an inside side surface perpendicularly facing the length axis line of the permeation window, and is coupled to the inner center of the housing;

30 a reflection unit which penetrates into and is coupled to each upper hole of the first and second side surface holding plates;

a guide unit formed with a ball screw and a guide rail wherein both ends of each of the ball screw and the guide rail penetrate into and are coupled to respectively bottom holes of the first and second side surface holding plates;

5 a pair or more of first guide blocks which are disposed on locations symmetrical about the center holding plate, wherein the ball screw of the guide unit penetrates into and is coupled to a pair or more of the guide blocks;

a second guide block which is coupled to the bottom of each of the first guide blocks and slides along the guide rail;

10 a driving unit which is coupled to one end of the ball screw and drives the ball screw;

an encoder which is coupled to the other end of the ball screw and detects information on the movement of the ball screw;

15 a moving reflection unit which is coupled to a coupling member on the top of each guide block and protrudes above the central axis line of the permeation window in the length direction;

a second irradiation unit which is coupled to the center holding plate by a coupling member and is disposed above the central axis line of the permeation window in the length direction;

20 a first irradiation unit which is inserted into a central hole of the first side surface holding plate and irradiates light; and

a control unit which is connected to the driving unit, the encoder, and the first and second irradiation units and controls the same.

25 3. The alignment laser projection system of claim 1, wherein in the penetration coupling of the ball screw and the guide block, a ball screw nut is used as a medium such that the rotational movement of the ball screw is converted into the rectilinear movement of the guide block.

30 4. The alignment laser projection system of claim 2, wherein in the penetration coupling of the ball screw and the first guide block, a ball screw nut is used as a medium such that the rotational movement of the ball screw is converted into the rectilinear movement of the guide block.

5. The alignment laser projection system of claim 2, wherein the guide rail and the second guide block are an LM rail and an LM block, respectively.

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6. The alignment laser projection system of claim 1, wherein the housing is one selected among a cylinder, a rectangular pillar and a polygonal pillar.

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7. The alignment laser projection system of claim 2, wherein the housing is one selected among a cylinder, a rectangular pillar and a polygonal pillar.

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8. The alignment laser projection system of claim 1, wherein the permeation window of the housing is formed as a slit of a recess shape, or the slit of a recess shape is tightly closed by a transparent material.

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9. The alignment laser projection system of claim 2, wherein the permeation window of the housing is formed as a slit of a recess shape, or the slit of a recess shape is tightly closed by a transparent material.

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10. The alignment laser projection system of claim 1, wherein the reflection unit is formed with a photo conductive drum with an embedded reflection plate.

11. The alignment laser projection system of claim 2, wherein the reflection unit is formed with a photo conductive drum with an embedded reflection plate.

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12. The alignment laser projection system of claim 1, wherein the ball screw is extended or contracted in both side directions, at the same time, from the center holding plate by the operation of the driving unit.

13. The alignment laser projection system of claim 2, wherein the ball screw is extended or contracted in both side directions, at the same time, from the center holding plate by the operation of the driving unit.

5 14. The alignment laser projection system of claim 1, wherein the driving unit is a motor.

15 15. The alignment laser projection system of claim 2, wherein the driving unit is a motor.

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16. The alignment laser projection system of claim 1, wherein the second irradiation unit is formed with a moving reflection unit.

15 17. The alignment laser projection system of claim 2, wherein the second irradiation unit is formed with a moving reflection unit.

18. The alignment laser projection system of claim 1, wherein the first and second irradiation units are laser units.

20 19. The alignment laser projection system of claim 2, wherein the first and second irradiation units are laser units.

25 20. The alignment laser projection system of claim 1, wherein the moving reflection unit is formed with a prism.

21. The alignment laser projection system of claim 2, wherein the moving reflection unit is formed with a prism.

30 22. The alignment laser projection system of claim 1, wherein the control unit further comprises a display to display a situation being controlled.

23. The alignment laser projection system of claim 2, wherein the

control unit further comprises a display to display a situation being controlled.

24. The alignment laser projection system of claim 22, wherein the display is formed with a touch screen.

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25. The alignment laser projection system of claim 23, wherein the display is formed with a touch screen.